IMPLEMENTATION AND USE OF REMOTE WORK TOOLS

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Purpose: The aim of this article is to describe employees' expectations and managers' practices in the implementation and use of tools supporting remote work.

Design/methodology/approach: To this end, employee opinion surveys were conducted using the Computer-Assisted Web Interview (CAWI) method (n = 500) and structured interviews were performed with managers (n = 14). Cross tabulation was employed to quantitatively verify statistically significant relationships and coding of the interview contents was applied in the qualitative analysis.

Findings: Based on the results, the impact of personal skills, IT support and tool selection on the use of remote work tools (and employee satisfaction) are assessed.

Research limitations/implications: In view of the newly emerging employee challenges it seems critical to refer to the latest research and constantly update the knowledge of all those involved. Hybrid work can change employees' opinions and attitudes and further diversify teams' expectations towards managers as well as the tools they use.

Practical implications: Good practices are identified and recommendations are formulated regarding the application of the tools by managers in practice.

Originality/value: The article organizes the issues of using technical tools for management during forced remote work. It shows employees expectations and best practices, which could be valuable for managers.

Keywords: Remote work tools, remote work.

Category of the paper: Research paper.

1. Introduction

The period between 2020 and 2022 will certainly be remembered as a time of profound social and economic changes related to the COVID-19 pandemic. In these years, work processes have undergone a significant transformation and remote work started to be used on an unprecedented scale. However, despite the ongoing Industry 4.0 revolution and its general awareness, many solutions were forced on managers and employees who did not have sufficient time to work them out or adapt to the changed working conditions and work digitisation.

As a result, the implementation of the otherwise well-known concept of remote work was unplanned and largely enforced, affecting the broadly defined work efficiency and contributing to the perpetuation of incorrect habits in the future.

Believing that remote or hybrid work (despite the significant decrease in the scale of the pandemic) will remain a common practice, we decided to take a closer look at the implementation of remote work tools. For the purposes of our research, remote work is defined as work performed outside the traditional workplace, using means of distance communication.

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2. Changes in work processes and conditions of remote work

Any review or analysis of remote work solutions requires a closer presentation of changes in work processes. Their evolution has been studied by researchers since the onset of the pandemic, with modifications reported in nearly all areas of work.

The scope of the tasks has changed. Both the pandemic and the ongoing revolution related to digitalisation have significantly altered the operational chain of values. New employee qualifications and Management 4.0 have emerged as essential aspects of business, further driving the operational transformation (Steude, 2021). The process of employee development has been altered in view of the new techniques for shaping employee attitudes and new tools to be learned and adapted (Steude, 2021). Changes in the means of communication also have an effect on how relations are established and maintained, enforcing a revision not only in the internal rules of operation but also in how the organisation interacts with the environment. Digitalisation across industries has resulted in new business models, imposing changes in the organisation of work and the role of managers given the remote (digital) registration of work processes and their supervision (cf. Ruiner and Klumpp, 2020).

Recognising the background of these changes in remote work, our analysis of management tools considers the conditions in which the latter was implemented. While the pandemic and the necessity to work from home have been a global experience, practical managerial solutions are a product of many factors related to specific jobs, individual qualities and immediate environment.

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[1] Implemented in cooperation with Beata Skowron-Mielnik and Marcin Gołembski (Poznań University of Economics and Business).

Research shows that employee efficiency during the recent transition to remote work remained the same or even improved – particularly in the case of individually performed tasks and slightly less so in the case of tasks requiring collaboration with other employees or interaction with clients (Laker et al., 2020). Employee performance largely depended on their individual characteristics and conditions (including family situation and physical working conditions at home) (cf. Urbaniec et al., 2022). In contrast, efficiency in jobs requiring interactions and collaboration was shaped by the sense of social connectivity (Laker et al., 2020). Another important aspect was mental health – people whose mental condition was better were about twice as likely to maintain or improve their performance of collaborative tasks compared to others (Laker et al., 2020). Employees' individual approach to remote work was also related to their previous experience with working online – it allowed them to avoid or reduce the occurrence of negative incidents when they were forced to work remotely (Lis et al., 2021).

An overall assessment of remote work (and the tools used) should also consider managers' predispositions such as, for example, appropriate trust levels between the manager and the employee (cf. Urbaniec et al., 2022). Trust proved to have a significant impact on dealing with communication problems (both technical and organisational) (Lis et al., 2021). In addition, managers are largely expected to act in accordance with the concept of agile management and have the ability to employ remote leadership techniques (Steude, 2021). While the changes and instability of managerial responsibilities have a negative effect on job satisfaction among managers, an increase in the scope of responsibilities (and managerial decision-making) support virtual teamwork (Martin et al., 2022).

3. Remote work tools and the principles of their use in the literature

When considering remote work during the pandemic, it should be highlighted that the use of flexible forms of work before this period was largely dictated by potential benefits recognised by employers, such as lower costs and better economic results, as well as employees' needs and preferences in this area (Urbaniec et al., 2022). However, it was during the COVID-19 pandemic that more attention started to be paid to occupational isolation as a physical and behavioural health risk for employees working remotely. Employees themselves can feel that when working online they are deprived of social stimulation that helps them stay motivated and committed to work (Mohanty and Jyotirmaya, 2021). In addition, poorly implemented tools can have a negative effect on the morale and productivity rather than improve work efficiency, which seems to be the case of employee monitoring software (Beňo et al., 2021).

Given the performance variability, different expectations and risks related to remote work, it seems justified to recognise its special conditions in the assessment of remote work tools. Researchers addressing this topic (Martin et al. 2022) observe that the use of remote work tools (group work software, workflow, instant messaging and online conference calls) in different combinations affects the evolution of the subjective well-being of teleworkers (job satisfaction, stress levels) and work efficiency. However, one must assume that there are different groups of employees (even within the same organisations and the same teams) who, due to specific qualities and individual conditions, will require different sets of tools. This shows how important it is to modify the managerial activities and properly select the tools (and ways of using them) in remote work. The realisation of this thesis is the primary challenge as well as a prerequisite for the effective application of the tools presented below.

In addition to the expectations regarding remote work tools and the conditions for their use, researchers and authors of numerous reports have analysed and indicated lists of those used most frequently. Excluding typical tools dedicated directly to narrow areas of work (sales, CRM, HRM, financial and accounting tools, etc.), tools supporting remote work more universally can be divided into:

- Enterprise social networking tools: Yammer, Jive (Raghuram et al., 2019).
- Communication tools: Skype, Google Hangouts, Facebook Messenger, Google Talk, Slack, Google Calendar, Trello, Asana, Nozbe (Trziszka, 2017),Microsoft Teams (Ilag, 2021).
- Remote monitoring and time tracking tools: Time Doctor, Rescue Time, Toggl, Hubstaff, Upwork, SkypeTime, YawareTimeTracker (Maltseva et al., 2021).
- Video conferencing tools: Zoom, Webex, Skype, CyberLink, U Mettin, Lifesize (Borissova et al., 2020).
- Tools for the support of learning systems: Moodle, Chamilo, ILIAS, Forma, LMS (Borissova et al., 2020).
- Project management tools: Jira, Bitrix24, Infolio, GitHub (Borissova et al., 2020).

In addition to lists of tools, scientific publications and expert reports also discuss solutions and techniques associated with the use of these applications. They include both the newly established rules and modifications of the working conditions and specific behaviours that determine the successful implementation of digital tools. The following are mentioned most frequently (cf. EY, 2021; Lis et al., 2021; PwC, 2020; PwC, 2020a):

- Verification of own/available IT facilities (computer stations with the necessary software provided to employees).
- Support in the preparation of the workplace outside the office.
- Enhanced mobile environment for the use of applications and data (ensuring access on other devices than the traditional computer).

- Investments in the training of team leaders, rewarding experience, paying for training in the use of tools as well as for learning.
- Organisation of and ensuring an effective communication system for the free flow of information.
- Agreement on the rules and regulations of remote work, implementation of security policies and regulations related to working time.

4. Results

There is a wide range of tools and application techniques available in business. Our study focused on the aspects that could improve their use according to employees. To this end, Computer-Assisted Web Interviews (CAWI) were conducted in a sample of 500 respondents (office employees of companies with international capital) who worked in the office (on-site in the company) before March 2020, i.e. before the COVID-19 pandemic, and then remotely between March 2020 to May 2021, as instructed by the employer. The sample representativeness was assessed based on the data of Statistics Poland and EUROSTAT, with the economically active population in Poland estimated at approximately 16,555,000, the number of office employees at approximately 1,092,000 and the number of employees in international companies at approximately 2,179,000. Random sampling was used, whereby company size was taken into account.

Respondents were asked to answer the following question: 'What do you think could contribute to a better use of technology/tools available in the area of remote work?'. The responses were categorised by the following aspects: tool selection, IT support and personal skills (the distribution of the responses is presented in Figure 1).

The statistical analysis was conducted in Statistica. Pearson's chi-square and maximum-likelihood chi-square tests were used for the verification of statistical significance. In addition, whenever statistical significance was found, Cramér's V was also calculated for further interpretation. A similar analysis was conducted, for example, by Beňo, Hvorecký and Šimúth (2021), who studied the relationship between employee monitoring software and individual characteristics of respondents.
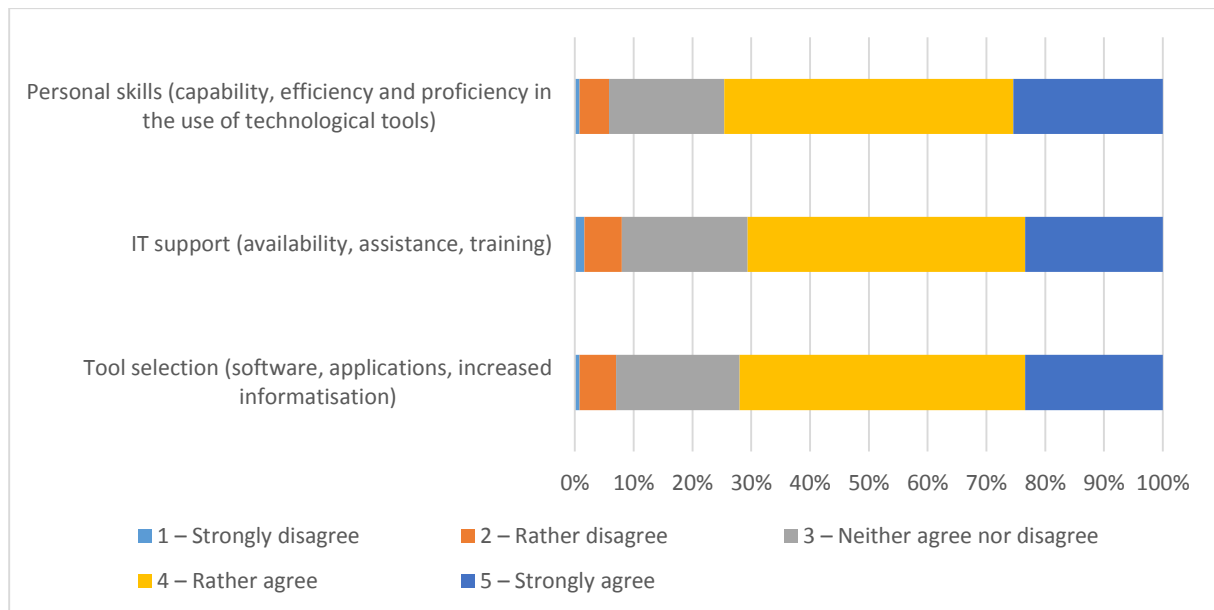
Figure 1. Impact of particular aspects on better use of remote work tools. Source: Own study.

Statistical significance, confirmed in the maximum-likelihood chi-square test, was identified between the company size (Table 1) and tool selection although the relationship between these variables was very weak. As many as 85% of respondents employed in small enterprises indicated that the choice of tools could contribute to a better use of technology and/or available remote work tools (responses 'strongly agree' and 'rather agree') – compared to 64% in medium-sized enterprises and 73% in large enterprises.

Statistical significance was also found between the respondents' financial situation and IT support and personal skills although it was once again a very weak relationship (and as such was not used for further analysis and inference). A more interesting relationship was observed with regards to the overall assessment of satisfaction with remote work. Dissatisfied and rather dissatisfied people rated the possible impact of technological solutions on their satisfaction levels as much lower (on average, 3.69 compared to 4.02 among those satisfied and very satisfied). The groups of the most satisfied and most dissatisfied respondents were more likely to indicate the tool selection while those rather dissatisfied recognised the development of their own skills as clearly more important. In fact, a statistically significant relationship was identified between the satisfaction levels with remote work and personal skills. However, while it was confirmed in Pearson's chi-square and maximum-likelihood chi-square tests, Cramér's V showed a very weak relationship between these variables (Table 1).

Table 1.

Results of the statistical analysis for the individual aspects of remote work versus the size of the company employing the respondents and their satisfaction with work (selected data)

	Company size			Satisfaction with remote work		
	Value	Df	p	Value	Df	p
Tool selection						
Pearson's Chi^2	16.17827	df = 8	p =.03990	24.73296	df = 16	p =.07467
Max.-likelihood Chi^2	21.18032	df = 8	**p =.00668**	24.11944	df = 16	p =.08693
Cramér's V	0.12719			0.1112047		
IT Support						
Pearson's Chi^2	4.30729	df = 8	p =.82839	30.13785	Df = 16	p =.01730
Max.-likelihood Chi^2	5.43221	df = 8	p =.71054	30.68951	Df = 16	p =.01474
Cramér's V	0.06563			0.1227556		
Pearson's Chi^2	13.69742	df = 8	p =.09000	34.85883	Df = 16	**p =.00415**
Max.-likelihood Chi^2	12.84960	df = 8	p =.11713	32.16433	Df = 16	**p =.00952**
Cramér's V	0.11704			0.1320205		

Source: Own study.

To confront employees' assessments with those of managers', interviews were conducted with 14 middle and senior managers in companies with international capital, responsible for the management of teams working remotely (based on the selection criteria of experience and availability). The main research task was to collect information about managers' subjective assessments of the survey results (which were presented to them during the interviews) and good practices (based on experience) regarding the management support solutions in remote work used in practice.

During the coding of the interview contents, firstly, the following employee management tools and methods (good practices) were identified (listed below in no particular order):

- Development of employees' competences including:
  - assessment (audit) of competences and skills,
  - arrangement of coaching/mentoring in the 'soft' techniques for the organisation of the team's life online,
  - provision of training and individual support,
  - use of digital training solutions: videos/tutorials, instructions, infographics, brochures (of high quality).
- Provision of tools and support (whereby managers were more likely to identify this practice as a response to risks, lack of support or problems resulting from the poor tool selection rather than as a possible advantage), and engaging employees in the tool/method assessment (while creating space for opinion sharing).
- Ensuring time to implement and adapt to new rules and tools.
- Development of netiquette rules, in particular those regarding instant messaging, e-mails, conversations, project management systems, including the definition of and paying attention to:

    o ways of formulating the content and addressing people,

    o rules for marking the availability status,

    o rules for working time/hours and dates of meetings, frequency of responses,

    o communication 'channelling' and focus on uniform/consistent forms of communication (e.g. reducing the number of tools, specifications for how and which information, files and messages are exchanged via the respective channels),

    o specification of requirements regarding the organisation of meetings (speaking rules, meeting agendas, methods and modes of administration).

- Development of working time rules to agree the (seemingly contradictory) 'right to disconnect' (stop working) and flexitime (e.g. allowing those who have children in remote learning under their care to work outside the standard hours),

- Using tools also to develop interpersonal relations (with elements of gamification, virtual coffee breaks, etc.).

- Secondly, the following general principles were also suggested by managers:

    o Ensuring freedom in how work is organised by performance managers, which includes the adjustment of the tool use to teams.

    o Communication of the view among managers (also those responsible for the technical aspects of remote work) that tools are to serve people and be used by people.

Nearly all managers emphasised that the effectiveness of the tool use in remote work (and its actual impact on employee performance) depended on how the tools were implemented rather than on what functionalities they offered. Interestingly, some managers argued that being a technological 'guide' within the organisation and in external relations gave them an additional advantage. Nevertheless, there were also voices suggesting that the current focus on technology was merely a temporary solution in the time of the pandemic restrictions.

Our study also highlighted several changes in employees' and managers' mentality (a shift towards trust), performance assessment (a shift towards employee accountability) and remuneration. However, these categories are the subject of further analyses and shall be presented in greater detail in future publications.

5. Discussion

It is worth noting a slight prevalence in employees' responses that personal skills were the most important factor determining the use of remote work tools. Managers were found to have similar views as they emphasised the need to increase employees' skills and competences. While the interviewed respondents were representatives of medium and large companies, the direct selection of tools proved even more important for employees of small enterprises.

This finding can be referred to other research which shows that Polish companies do not invest sufficiently in the development of remote work options (with managers indicating that they lack the organisational background and procedures) (Urbaniec et al., 2022).

Another interesting aspect is the recognition that remote tools can also be used to build relations[2]. This has also been highlighted by other researchers who observe that the communication link (digital solutions) mediating the human contact and preventing the isolation of teleworkers is essential to ensure their well-being and efficiency (Martin et al., 2022). An innovative experiment was conducted in Japanese companies where selected groups of employees used digital instruments and a dedicated application to express their mutual gratitude. This study showed that opinions shared via digital devices can strengthen relationships among employees, increase trust and enhance commitment to work (Yamamoto et al., 2022). Other researchers argue that the use of remote work tools affects the levels of perceived stress, self-efficacy and self-esteem (Kondratowicz et al., 2022). Remote work should translate into higher job satisfaction levels and a better relationship between employee efficiency and working hours (Kaufman and Taniguchi, 2021), if nothing else than because of the time saved on commuting (Lin and Bao, 2019). However, when poorly implemented, remote work tools and the rules of their use can disrupt the work-life balance (cf. Raghuram et al., 2019).

6. Summary

Employees' expectations in the studied area proved to be relatively consistent, both in terms of personal skills and IT support and the selection of the tools themselves. Managers commenting on the survey results were aware of this assessment and presented largely similar ideas. However, in nearly every interview they highlighted the need for the flexible adjustment of the scope and methods of the tool use to the requirements of a given group – within a well-defined framework and based on consistent rules. This diversity between both groups (and their different expectations) was also confirmed by the surveys conducted among employees.

This recommendation expressed by managers should be recognised as the leading good practice in management. Other studies also show that employees satisfied with the working tools are approximately twice as likely to maintain or improve their efficiency in performing collective tasks compared to those whose satisfaction with the available tools is low (Laker et al., 2020).

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[2] Analyses related to the assessment of the advantages and disadvantages of remote work are the subject of our next study within the same research project: *Factors influencing employee performance in the conditions of enforced remote working: The employee experience perspective* (pending publication).

In subsequent publications, we intend to present further analyses of remote work tools, including those focused on team management, to provide some insight into the conditions of remote work and the impact of various solutions on the subjective assessment of the individual areas of work. Hopefully, our research linking the tools, conditions and effects will prove to be of interest to practitioners.

Last but not least, in view of the newly emerging employee challenges it seems critical to refer to the latest research and constantly update the knowledge of all those involved. Hybrid work can change employees' opinions and attitudes and further diversify teams' expectations towards managers as well as the tools they use.

References

1. Beňo, M., Hvorecký, J., Šimúth, J. (2021). E-panopticon of face-to-display workers: from the office to the home. *Journal of Interdisciplinary Research, Vol. 11, No. 1*.

2. Borissova, D., Dimitrova, Z., Dimitrov, V. (2020). How to Support Teams to be Remote and Productive. *Group Decision-Making for Distance Collaboration Software Tools, Information & Security: An International Journal, Vol. 46, No. 1*.

3. Ilag, B.N. (2021). Tools and Technology for Effective Remote Work General Terms Tools and Technology for Effective Remote Work. *International Journal of Computer Applications, Vol. 174, No. 21*.

4. Kaufman, G., Taniguchi, H. (2021). Working from Home and Changes in Work Characteristics during COVID-19. *Socius: Sociological Research for a Dynamic World, Vol. 7, No. 1*.

5. Kondratowicz, B., Godlewska-Werner, D., Połomski, P., Khosla, M. (2022). Satisfaction with job and life and remote work in the COVID-19 pandemic: the role of perceived stress, self-efficacy and self-esteem. *Personality Psychology, Vol. 10, No. 1*.

6. Laker, B., Godley, W., Patel, C., Cobb, D. (2020). How to monitor remote workers — ethically, *MIT Sloan Management Review* [Preprint], https://centaur.reading.ac.uk/93709/1/Surveillance-andhowtomonitorremoteworkingethically.docx, 19.04.2022.

7. Lin, J.-H., Bao, S. (2019). The effect of sit-stand schedules on office work productivity: A pilot study. *Journal of Prevention, Assessment and Rehabilitation, Vol. 64, No. 3*.

8. Lis, T., Ptak, A., Lis, M. (2021). Trust as an element of the functioning of the information system in management in conditions of forced remote work. *Energies, Vol. 14, No. 21*.

9. Maltseva, I., Shulgina, Y., Kalimov, O. (2021). Features of social and labour monitoring in the conditions of transition to remote employment. *Economic Annals – XXI, Vol. 186, No. 11-12*.

10. Martin, L., Hauret, L., Fuhrer, C. (2022). Digitally transformed home office impacts on job satisfaction, job stress and job productivity. COVID-19 findings. *PLoS ONE, Vol. 17, No. 3*.

11. Mohanty, V., Jyotirmaya, S. (2021). Post – Pandemic Metamorphosis in HR Curvatures, Parikalpana. *KIIT Journal of Management, Vol. 17, No. 1*.

12. PwC (2020a). *COVID-19: The impact for Global Mobility and the mobile workforce*, https://www.pwc.co.uk/human-resource-services/assets/EMRS/impact-on-global-mobility-mobile-workforce-survey.pdf, 28.04.2022.

13. PwC (2020b). *When everyone can work from home, what's the office for?* PwC's US Remote Work Survey, https://www.pwc.com/us/remotework?utm_campaign=sbpwc&utm_medium=site&utm_source=articletext, 28.04.2022.

14. Raghuram, S., Hill, N.S., Gibbs, J.L., Maruping, L.M. (2019). Virtual work: Bridging research clusters. *Academy of Management Annals, Vol. 13, No. 1*.

15. Ruiner, C., Klumpp, M. (2020). Arbeitskräfte zwischen Autonomie und Kontrolle – Auswirkungen der Digitalisierung auf Arbeitsbeziehungen in der Logistik. *Industrielle Beziehungen, Vol. 27, No. 2*.

16. Steude, D.H. (2021). Challenges of Remote Leadership in a Digitalized Working World 4.0. *Management of Organizations: Systematic Research, Vol. 85, No. 1*.

17. Trziszka, M. (2017). Narzędzia komunikacji wykorzystywane w modelu pracy zdalnej w firmach rodzinnych. *Przedsiębiorczość i Zarządzanie, Vol. XVIII, No. 6*.

18. Urbaniec, M., Małkowska, A., Włodarkiewicz-Klimek, H. (2022). The Impact of Technological Developments on Remote Working: Insights from the Polish Managers' Perspective. *Sustainability, Vol. 14, No. 1*.

19. Yamamoto, J.I., Fukui, T., Nishii, K., Kato, I., Pham, Q.T. (2022). Digitalizing Gratitude and Building Trust through Technology in a Post-COVID-19 World—Report of a Case from Japan. *Journal of Open Innovation: Technology, Market, and Complexity, Vol. 8, No. 1*.